

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
24 December 2003 (24.12.2003)

PCT

(10) International Publication Number
WO 2003/105658 A3

(51) International Patent Classification⁷: **A61N 1/00**

(21) International Application Number:
PCT/IL2003/000508

(22) International Filing Date: 13 June 2003 (13.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/388,931 14 June 2002 (14.06.2002) US
10/294,310 14 November 2002 (14.11.2002) US

(71) Applicant (for all designated States except US): **BRAINS-GATE LTD.** [IL/IL]; Beit HaTamar, 2nd Floor, 17 HaTidhar Street, P.O. Box 2249, 43654 Ra'anana (IL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **SHALEV, Alon** [IL/IL]; 9 Wingate Street, 43587 Ra'anana (IL).

(74) Agents: **SANFORD T. COLB & CO.** et al.; P.O. Box 2273, 76122 Rehovot (IL).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

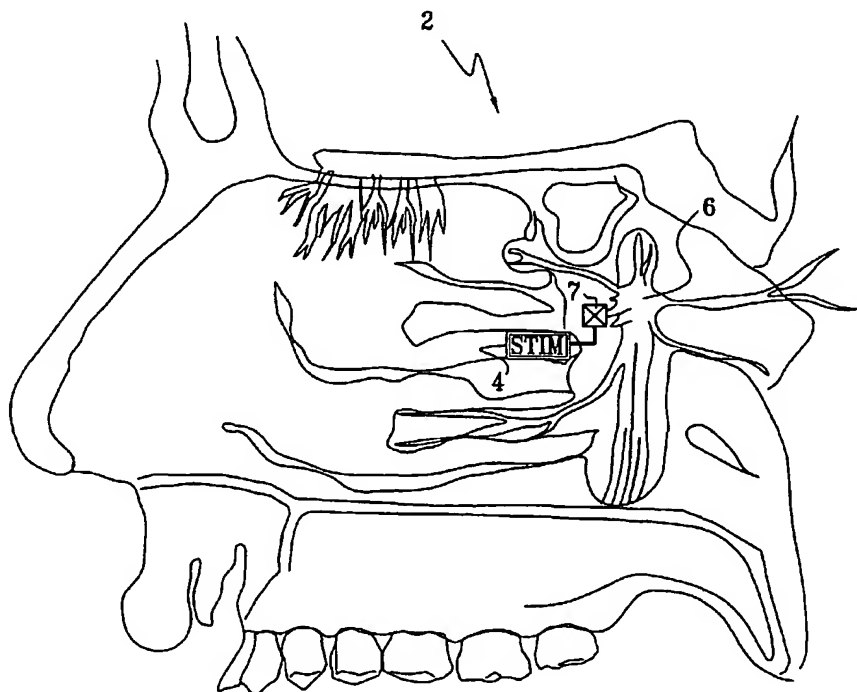
Published:

— with international search report

(88) Date of publication of the international search report:
18 March 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHODS AND SYSTEMS FOR MANAGEMENT OF ALZHEIMER'S DISEASE



(57) Abstract: Methods of diagnosing and treating Alzheimer's disease (AD) are provided. The methods include stimulating the sphenopalatine ganglion (SPG) (6) of a subject with an olfactory or electrical stimulator (4) so that the concentration of a substance in the subject's brain changes.

WO 2003/105658 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IL03/00508

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61N 1/00

US CL : 607/1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 128/898-899; 607/1-3, 115-116, 118

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- A	US 6,325,475 B1 (HAYES et al) 04 December 2001 (04.12.2001), Figs. 1-3, Col. 7, line 29-Col. 8, line 36, Col.19, line 19-Col. 22, line 3.	164-173, 176-177 ----- 97, 99, 107, 115, 117, 121, 129, 139, 146, 148, 150, 152, 154, 156, 158
X --- A	US 6,338,715 B1 (HAYES et al) 15 January 2002 (15.01.2002), whole document.	164-173 ----- 97, 99, 107, 115, 117, 121, 129, 139, 146, 148, 150, 152, 154, 156, 158
A	US 5,792,100 A (SHANTHA) 11 August 1998 (11.08.1998), Col. 2, lines 25-31, Col. 5, lines 23-35, Col. 6, line 48-Col. 7, line 10.	96, 98, 105, 115-116, 119, 127, 137-138, 145, 147, 149, 151, 153, 155

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

19 October 2003 (19.10.2003)

Date of mailing of the international search report

29 DEC 2003

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703)305-3230

Authorized officer

Kristen Drossch
Telephone No. 703-605-1185